Soil Conservation

May 1977

U.S. Department of Agriculture

Just Add Water 10

A Better Brand of Range Management 12

Energy Equation for Recreation 18

From the Administrator

An Easy Selling Job

Conservation-minded ranchers will accept a sound approach to land management, even when it breaks with custom and tradition.

Coordinated resource plans, or CRP's, represent one such approach. For the past 10 years, such plans have been finding increasing favor with ranchers whose livelihood depends on efficient use of a mix of private and public grazing lands.

State and federal agencies that administer public lands also see coordinated resource planning as an important tool in achieving multiple-use management goals. The Soil Conservation Service is convinced that the process offers one of the best methods available for making SCS technical assistance count in improving grazing land, the largest single land use in America.

A coordinated plan replaces several old conservation or management plans. It covers with a single plan all the public and private parcels of land that a rancher uses, detailing management needs for the whole operating unit. It spells out conservation responsibilities for the management agencies as well as for the rancher, so that they can work together toward common goals.

Plans now in use range from one in South Dakota that coordinates use of scattered small tracts to one in Alaska covering 2½ million acres of federal, state, borough, and private land.

Howard Borgerding's ranching operation, described in the article beginning on page 12, in many ways is typical of the majority of existing CRP's. The local conservation district was the catalyst for developing interest in the concept. The district board also provided a forum for "the fine art of arbitration" that brought together the rancher and the agencies responsible for directing public land use. The plan worked.

In its short history, coordinated resource planning has proved its value for many ranchers and their livestock, for fish and wildlife, and for the long-term conservation of natural resources on public and private lands.

With ranchers' help in showing others what can be accomplished through coordinated planning, we know that more will want its help in strengthening their own ranching operations.

Mel Davis

May 1977, Vol. 42, No. 10

Soil Conservation is the official magazine of the Soil Conservation Service. The Secretary of Agriculture has determined that publication of this periodical is necessary in the transaction of public business required by law of this Department. Use of funds for printing *Soil Conservation* has been approved by the Director of the Office of Management and Budget through July 31, 1978.

Bob Bergland
Secretary of Agriculture

R. M. Davis, Administrator
Soil Conservation Service

Prepared in the Information Division
Soil Conservation Service
U.S. Department of Agriculture
Washington, D.C. 20013

Judith E. Ladd
Editor

Maryellen Bertram
Editorial Assistant

Christopher Lozos
Design Consultant

Reprint permission
Contents of this magazine may be reprinted without special permission. Credit is not required but is appreciated. Photos available on request.

Commercial names
Mention of commercial enterprises or brand names does not constitute endorsement or imply preference by the Department of Agriculture.

Subscriptions
$6.85 per year, $8.60 foreign. Single copy, 55 cents. Discounts of 25 percent on orders of 100 or more sent to the same address. Order directly from:

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

Soil Conservation

Contents

From the Administrator 2

Trailblazing and Stream Saving Thanks to Title X 4
F. James Parks

A Lagoon Grows in Hawaii 8
Otis M. Gryde

When Water Came to Town 10
Thomas W. Levermann and Harold A. Woodward

A Better Brand of Range Management 12
Henry C. Wyman

Energy + Environment = Montour Preserve 18
Harry T. Barnes, Jr., and Henry A. Levandoski

A Full-Service Watershed 20
Gene Warren

Oases for Wildlife 21
David Chalk

Reviews and New Publications 22

Keeping Commissioners Current 23
Lynn Betts

Meetings 23

Trailblazing and Stream Saving—Thanks to Title X

by F. James Parks

Title X projects have boosted employment in many communities, while giving some local natural resources a new lease on life. Alabama, Michigan, and Pennsylvania are among the states that used Title X funds for conservation programs.

A Title X crew in Pennsylvania works on stream improvement in the Hicks Run watershed. Only natural materials were used and were hand carried to the site.

Cleaner streams and lakes . . . improved parks and recreational facilities . . . more effective flood prevention and erosion control . . . repair of storm and disaster damage.

This is not just a list of conservation goals. It also illustrates the kind of results achieved through Title X projects.

Title X, the Job Opportunities Program, was enacted by Congress in 1974 as part of an effort to assist communities which had high unemployment rates. There was good reason for congressional concern. As late as January 1976, 3.7 million workers in the United States under the age of 25 were unemployed. About one-third of them lived in rural areas.

For more than 3,500 of these idled workers, the "Opportunity" in Title X meant just that. It gave them a new chance to pay their own way. It got many off the welfare rolls. It also stimulated local pride by restoring or protecting natural resources.

During the active phase of the program, a total of 138 projects with conservation objectives were authorized and carried out. They affected communities in 39 of the 50 states.

Projects were funded with "pass-through" money. Funds were appropriated by Congress to the Economic Development Administration (EDA) of the Department of Commerce. For conservation projects, EDA allocated funds to the Soil Conservation Service (SCS) which then made them available to local conservation districts. One limitation on these funds is that at least 70 percent of them must be earmarked for labor—rather than material and equipment—costs.

There was an overwhelmingly favorable response to Title X projects. Here are three of the many local testimonials.

Alabama

Thanks to a Title X project, Alabama's Clay County now boasts the Crooked Creek Nature Trail—both a local and a tourist attraction. Along with an 11,200-foot scenic walk, visitors are greeted by clearly marked specimens of trees, shrubs, and herbs that are native to the county. Transplantings are still in progress. When they are completed, more than 500 species will have identification markers.

The trail winds along the banks of a multiple-purpose floodwater retarding reservoir in the Crooked Creek watershed—a reservoir built with Public Law 566 small watershed project funds. Hikers can enjoy a picnic lunch and get a lesson in local botany at the same time. Picnic tables, barbecue pits, and benches along the trail provide spots to rest, snack, and enjoy an excellent view of the reservoir and its surroundings.

Further enhancing this natural setting are bridges constructed of logs from trees that were cut to clear the trail; birdhouses made of hollow limbs and small logs; and rustic wood duck nesting boxes. Piles of brush offer cover for wildlife.

The trail is an esthetic achievement for Clay County as well as an economic plus: it has brought $200,000 into the local economy.

Supervisors of the Clay County Soil and Water Conservation District, who carried out the project, are more than pleased with its impact. "It's one of the best things that could have been done to help the economy," notes Chairman Lewell Sellers. "It helps keep people off welfare."

Residents hired to work on the trail were even more enthusiastic. "There were no jobs until this," said Anna Pearl Houston. "I hauled rock, built nature trails, and watered flowers. I loved the job and just wish it would have lasted forever."

In Alabama, over 500 species of trees, shrubs, and herbs have been planted and labeled with common and scientific names.

The nature trail was cleared and leveled by hand and covered with crushed limestone.

Maxine Howard and Title X Coordinator Hoyt Mattox enjoy a walk along the trail. Student groups, Scout troops, and the general public are encouraged to use the trail for nature study.

Exercise stations are located along a jogging trail in Michigan. A sign at each station shows joggers how to do the exercise.

Michigan

Another kind of trail—for jogging and recreation—opened last September in Jonesville, Mich., the result of a Title X project carried out by the Hillsdale County Soil Conservation District (SCD). Hillsdale County, with an unemployment rate of almost 17 percent, was one of 10 SCD's in Michigan to receive Title X funds.

The jogging trail—called a "parcours" after similar facilities that have become popular in Switzerland—was started by Sue Carlisle, a teacher at the Williams Elementary School in Jonesville. Carlisle heard about a parcours in Ann Arbor, visited it, and returned to Jonesville with photographs and an idea.

She met with the school board and the recreation committee of the village of Jonesville. The school board agreed that a parcours could be built on vacant land next to the Williams School. The village contributed $1,000 toward the project but didn't have a labor force to work on it. The Hillsdale County SCD agreed to provide labor under the Title X program.

Thus, an overgrown field, a small woodlot, and a pond became the site for a 1¼-mile parcours in Jonesville.

The facility has proved attractive to both sedentary and active residents in the area. Some find it convenient for a leisurely stroll. The more athletic can vault the logs, scamper up the ramps, jump across the ditch, or visit one of the 19 exercise stations to perform the suggested kneebends and chin-ups.

Jonesville's elementary school children enjoyed the facility so much that a "miniparcours" has been developed for the Williams School playground. Through an organized program, the children can measure their achievement by keeping track of the time they spend on the trail and the number of exercises they complete.

Pennsylvania

For Pennsylvania's Elk and Cameron Counties, recreation was a secondary goal. Resource and wildlife protection came first.

Hicks Run, which flows through a wild and isolated section of both counties, is a good quality native-trout stream. It is part of a watershed which includes wood and hunting lands and is home to Pennsylvania's only elk herd.

A major step toward assuring environmental protection in this area was to reduce the stream's sediment load. Doing this required such improvement devices as channel blocks, jack dams, log cribbings, deflectors, and riprap.

Determining what was needed was the easy part. The difficulty was that all of the materials had to be transported to installation sites by hand. That called for a crew of willing workers and cooperation between government agencies, private businesses, and individuals. It all came together under the umbrella of a Title X project.

SCS received $240,000 in Title X funds from EDA. This money was directed to the Elk and Cameron SCD's for use in administering the work. The Pennsylvania Fish Commission planned and supervised the job. Two other state agencies, the Bureau of Forestry and the Pennsylvania Game Commission, provided the land. The Bureau of Forestry also donated trucks and rock. A private sawmill donated the slabwood needed for stream improvement structures. Because so much of the necessary material and equipment was donated, nearly all the funds were used to create jobs for almost 100 local people.

Seldom had a more diversified crew been assembled. More than a dozen were on the welfare rolls. About 20 percent had college degrees but were unemployed. Some 15 percent were women. They furnished the hand labor that brought logs, slabwood, tools, and about 20 million pounds of rock to installation sites.

When the project was completed, many of the workers found other jobs. Some returned to college. Said Gordon Beck, a crew foreman, "I've been in construction work for 15 years, and this is the best crew I've ever had."

The money was well spent. According to Paul Gerg, Elk County coordinator, "A state official told me that, if handled by contract, each structure would cost about $4,000. We built them for less than $500 each."

Mr. Parks is a staff writer, Information Division, SCS, Washington, D.C.
Contributing authors: Philip K. Cornelison, district conservationist, SCS, Ashland, Ala.; Roger D. Nanney, district conservationist, SCS, Hillsdale, Mich.; and Frederick W. Bubb, public information officer, SCS, Harrisburg, Pa.

Above, Paul Gerg, Elk County Coordinator, and Bob Mondock and Ron Tibbott, Pennsylvania Fish Commission, examine a completed jack dam on Hicks Run.

At left, log and stone deflectors and a two-stage jack dam (in background) were installed by Title X crews in Pennsylvania.

A Lagoon Grows in Hawaii

by Otis M. Gryde

A new manmade lagoon is marking the first stages of a flood protection plan that already is providing a different kind of recreation to an ocean-oriented community.

It was, no doubt, the first luau ever held in honor of a desilting basin. Yet a hundred windward Oahu residents turned out to help celebrate completion of this first stage of the Kahaluu Watershed and Flood Control Project.

The desilting basin forms a 7.5-acre lagoon that drew crowds of boaters and fishermen as soon as it was completed in late 1976.

"Kids could hardly wait for the lagoon to fill before they were out in all kinds of boats," said State Representative Ralph Ajifu, chairman of the Windward Oahu Soil and Water Conservation District (SWCD).

The lagoon is part of a Public Law 566 project sponsored by the Windward Oahu SWCD and the City and County of Honolulu.

Residents organized to look for a solution to the Kahaluu area's flooding problem on the heels of a series of destructive floods in 1965. "We'd been talking about our flood troubles for years," according to Harry Lau, owner of a local restaurant. "Once floodwaters higher than my waist came pouring across the highway, and a log crashed through my front customer-service window. It'll be nice when we don't have to worry about things like that anymore."

When the Public Law 566 project is finished in about 5 years, the lagoon will have grown to 28 acres and will be surrounded by a 22-acre park with trails, picnic sites, and a boat ramp. The lagoon is also designed to help remove silt from runoff water before it enters Kaneohe Bay.

Cost of the Public Law 566 project is being shared by the Soil Conservation Service and the City and County of Honolulu. SCS and the Forest Service are providing technical assistance through the Windward Oahu SWCD to help accelerate land treatment measures in the watershed.

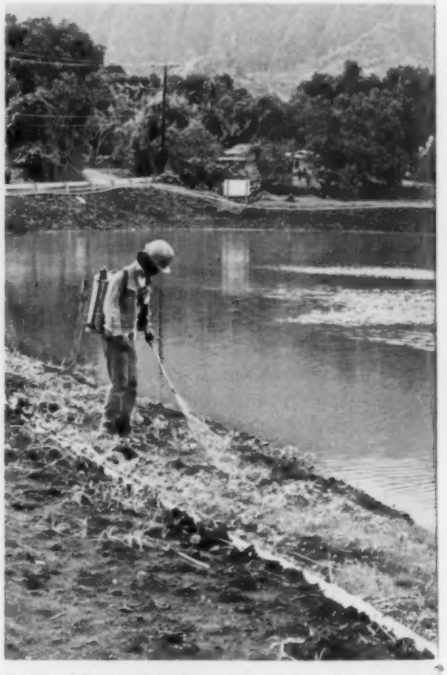
In addition to the lagoon features, plans call for:

- Constructing small debris basins at the head of three streams and channel improvement of the streams.
- Planting vegetative cover on old erosion scars, road cuts, and building construction sites to stabilize soil, reduce damage from sediment and runoff, and enhance natural beauty.
- Improving management of land used for crops, pasture, and forests to control soil erosion.

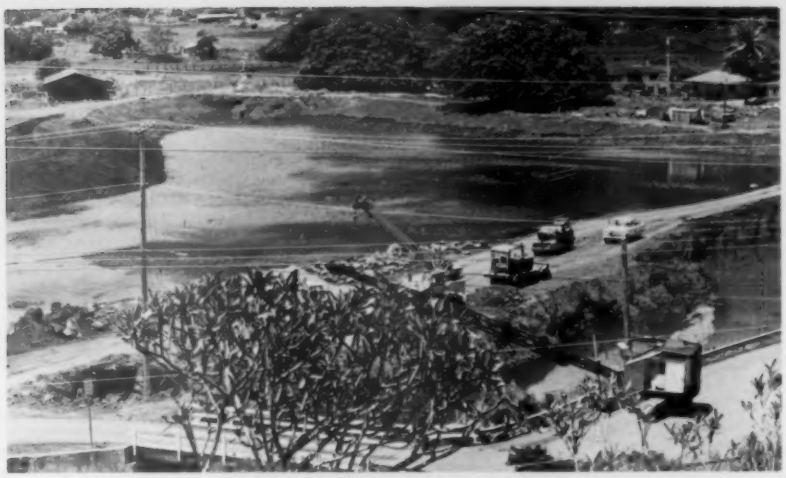
Honolulu's Parks and Recreation Department is meeting with community groups to plan additional recreation facilities for the watershed area.

When complete, the Kahaluu project will provide flood protection and conservation treatment for nearly 4,500 acres of land and, as Ajifu notes, "land is about the scarcest resource we have in the islands."

Mr. Gryde is district conservationist, SCS, Honolulu, Hawaii.



Bermudagrass has been planted on the lagoon's banks and paspalum near the outlet to the saltwater bay.



Far left, floods like this one in 1965 caused residents in the Kahaluu area to seek a way to control flooding. Near left, a desilting basin is the first stage of the flood control project.

Kahaluu youngsters have fun boating in the outlet channel of the lagoon.

Residents of a town in southern Kentucky seldom had enough water to meet their needs. Today, the Mill Creek Watershed Project provides a dependable source of water and flood protection for the area.

by Thomas W. Levermann
and Harold A. Woodward

When Water Came to Town

The Tompkinsville water supply used to dry up periodically—as did the economy of this city in Monroe County, Ky.

"People left, and business and industry refused to locate here," said Dave Walden, who will soon retire after 32 years as the Soil Conservation Service's district conservationist in Monroe County. "We just couldn't grow without water."

A watershed project changed all that. People are staying now and more are moving in.

The original water treatment plant in Tompkinsville was constructed in the 1930's. It was designed to serve only about 90 users. By the mid-1960's, though, it was pumping water to nearly 900 homes and businesses. When demand was too strong, Tompkinsville's water source, Town Creek, dried up. At those times, a line was run from a 12-acre pond to the water treatment plant. The pond once provided Tompkinsville's water for an entire summer.

On those few occasions when the community got too much water, flooding caused considerable economic grief. Because the area's topography is rough, flood damage tended to concentrate on the limited amount of flatland on the valley

One of the many recreational benefits of the Mill Creek Watershed Project is a playground located next to the lake.

The town's former water supply proved inadequate when demand was heavy.

A new water treatment plant was successful in meeting the increased demand.

floors. With average per capita income in Monroe County only about half that of the state average, agricultural and business losses caused by flooding amounted to local disasters.

To do something about the water situation, Tompkinsville and the Monroe County Conservation District asked SCS for assistance under Public Law 566. The Mill Creek Watershed Project included construction of a dam and a 115-acre lake to reduce flooding and give Tompkinsville a more dependable source of water. It also included a community recreation area around the lake, with playgrounds, picnic facilities, and boat docks.

A complete conservation land treatment program for the Mill Creek watershed supported the structural aims. Project costs of nearly $900,000 for land rights, engineering services, dam design and construction, recreational facilities, fencing, and establishment of vegetative cover were shared by SCS (57 percent), the city of Tompkinsville (22 percent), and the Economic Development Administration (21 percent). Construction began in 1969 and the lake was filled in 1972.

Assisted by SCS and the District, landowners did their part, too. The number of conservation district cooperators in the watershed area increased from 85 to 215. Conservation cropping systems were planned and installed on 1,800 acres. Hay and pasture seedings were completed on 5,540 acres, trees were planted on 125 acres, and 54,430 feet of underground tile drain was installed. Vegetation was established on 322 acres of critically eroding areas. Seventy-three farm ponds and 7,500 feet of terracing also were installed.

These measures reduced soil erosion, while increasing crop yields and profits for the rural landowners. They helped assure the lake would be silt-free for many years, thus reducing maintenance costs and improving the water quality. Elimination of the flooding problem has brightened the agricultural outlook for Monroe County. And local businesses, industries, and homes are assured of adequate fire protection.

Sewage and water treatment plants brought new life into the 150-year-old town. The city purchased a 35-acre industrial site. A local cheese plant doubled its production capacity and brought in many new employees. Two clothing manufacturers and two pallet plants began operation. Almost $4 million worth of new construction included a vocational and elementary school, a city library, a football stadium, several homes and apartments, and a 64-unit low-income housing development. The high school was enlarged and the hospital added 20 beds. Another doctor and another dentist moved into the area.

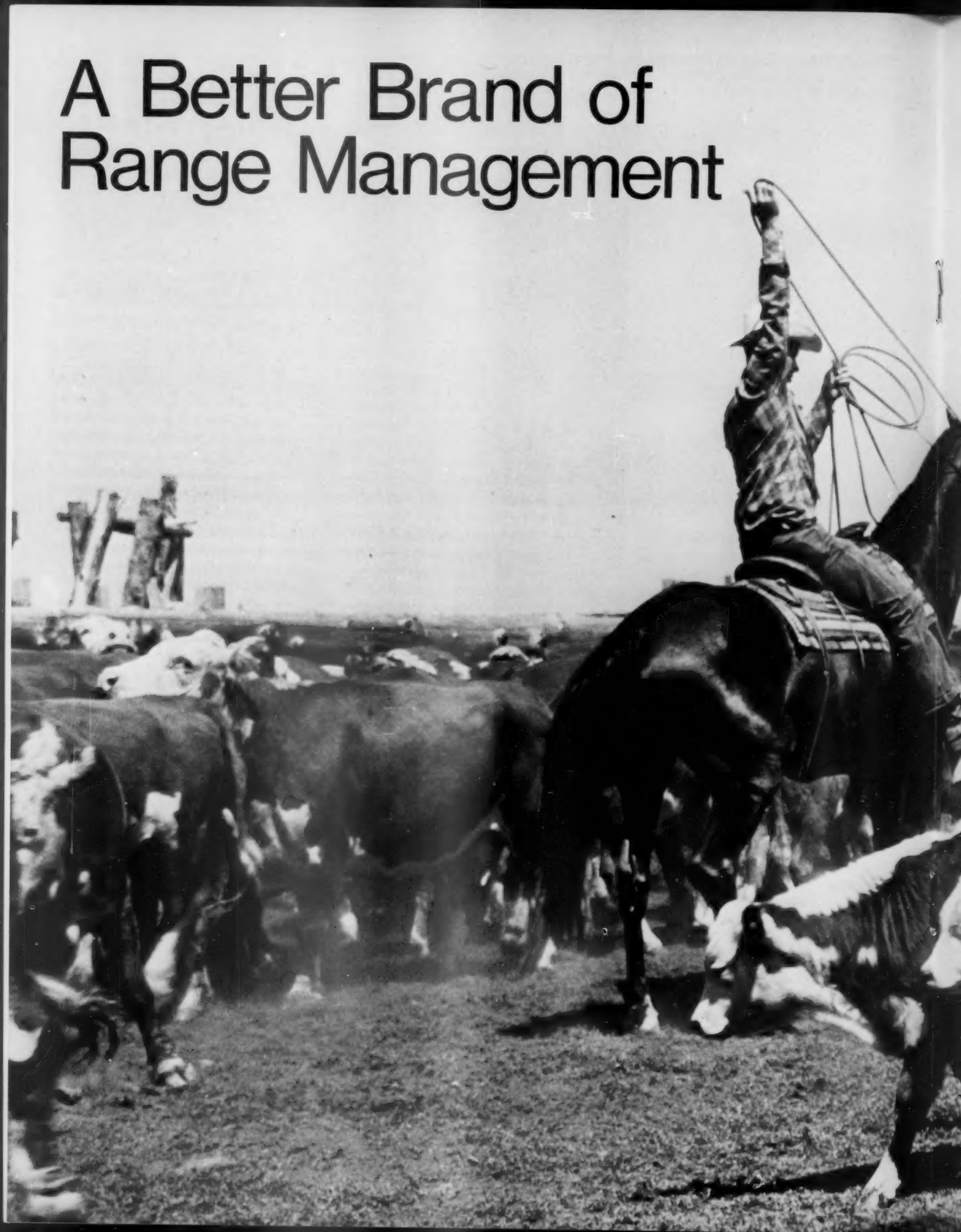
A rural water district also will soon begin supplying water to 500 people in the town of Gamaliel, 8 miles south of Tompkinsville. Two more rural water districts are planned.

Kenneth Bartley, president of the Tompkinsville Chamber of Commerce, credits the watershed project with bringing new growth to the city. "I'd say 500 people have moved in since the water came," he says. "These new residents bring their money into town and pay taxes. This has been a real stimulus to business in the area."

Mr. Levermann was public information officer, SCS, Lexington, Ky. He is now an educational relations specialist, Information Division, SCS, Washington, D.C.

Mr. Woodward is visual information specialist, SCS, Lexington, Ky.

A Better Brand of Range Management



A rancher in Oregon uses his Coordinated Resource Plan to build a profitable business while improving natural resources on land that was "grubbed out by sheep" when he bought it.

by Henry C. Wyman

Former Navy fighter pilot Howard Borgerding finds the systematic approach the best way to get things done.

During a decade of ranching in northeast Oregon, he has become Wallowa County's leading advocate of a systematic technique for natural resource management—the Coordinated Resource Plan (CRP).

Like many westerners, Borgerding grazes his stock partly on his own land and partly on lands administered by agencies such as the Bureau of Land Management, USDA's Forest Service, and various departments of state government.

Before coordinated resource planning came along, ranchers operating on "checkerboards" of intermingled public and private land found themselves trying to juggle a half-dozen management and conservation plans, Borgerding recalls.

"We might have two forestry plans,

One of the major benefits of the CRP approach is that it reveals conflicting requirements of the various land uses involved and helps assure that the conflicts are resolved.

a couple of wildlife agreements, two conservation plans, and an assortment of management charts and maps," Borgerding said. "Lack of consistency caused some headaches: A pasture labeled 'B' on one plan would be labeled '7' on another and would be combined with two more pastures on another plan."

A Coordinated Resource Plan provides a single, overall, long-term plan for managing and improving an entire ranching unit. The rancher and the agencies are parties to the plan, which incorporates all parts of the operation—the rancher's own property and land used under agreements with state or federal agencies. The CRP process also reduces the chance of overlooking prospective multiple uses of land, regardless of ownership.

The need for better range management led to most of the CRP's in use today. More and more plans, however, are being developed with timber harvesting, fisheries, and wildlife habitat as the primary resource management concerns.

Each plan is prepared by a group that includes those responsible for managing all segments of land involved. Also on the team are conservation district and Soil Conservation Service representatives and other resource management advisors. The plan includes basic soil and water inventories that describe the existing resource situation and an outline of potentials for effective development.

About 60 acres of 'Latar' orchardgrass and clover pasture have replaced scoured, weedy bottomland along Big Sheep Creek.

The landowner and land-management agencies agree on a single plan that covers all the land, public and private, that the rancher uses.

One of the major benefits of the CRP approach, Borgerding notes, is that it reveals conflicting requirements of the various land uses involved and helps assure that the conflicts are resolved.

"You've got different people with different ideas about how to handle the resources," said Borgerding. "You've got wildlife people, forestry people, soil conservationists, and ranchers. You talk together, work out the differences, and make the agreement formal."

Borgerding, who describes himself as "pretty methodical about a lot of things in life," started careful planning to become a cattle rancher well before he retired as a jet pilot in 1966. He picked his Oregon site after visiting four western locations chosen with the help of a computer.

Coordinated resource planning has proved more thorough, effective, and economical than other types of resource planning efforts for ranching operations.

Beginning with selected data (temperature, rainfall, topography, streamflow, and elevation) on dozens of prospective ranching areas, Borgerding used his own specially designed computer program to locate those that best met his "ideal" criteria.

"I wouldn't recommend such an effort to anyone else, but I was studying computers and needed a project," Borgerding recalled. "When my wife and I checked out the four spots that led the list, we reverted to the more conventional methods of selecting farm property: looking over soil surveys, schools, livestock marketing facilities, and so on."

In 1966, the new rancher became a cooperator of the Wallowa Soil and Water Conservation District (SWCD), saying that he hoped to build the property into "a profitable and enduring" livestock operation. "The first thousand acres we bought were absolutely grubbed out by sheep overgrazing," he recalls. "We didn't graze much for the first 3 years; then after several years of proper grazing, native perennials like bluebunch wheatgrass and Idaho fescue started coming back."

Today, the Borgerding family owns 8,400 acres—now called "Courthouse Ranch"—and uses an additional 17,000 acres under permit from the Forest Service, paying a grazing fee for each animal unit.

Coordinated resource planning has proved more thorough, effec-

Borgerding's improved irrigation system provides one of the keys to better management of 400 acres of the rancher's most productive land.

Vegetation plantings and other streambank stabilization work outlined in the Coordinated Resource Plan improve habitat for steelhead and Chinook salmon by protecting spawning beds and maintaining water depth and quality.

tive, and economical than other types of resource planning efforts for ranching operations. One Oregon study showed 40 percent more conservation applied to land under coordinated plans than to similar land under conventional management and conservation plans.

Borgerding credits his CRP with providing a logical, step-by-step method of building a profitable business while improving the natural resources upon which the business depends. "You can do about anything to the land for a year or so and get by; but if you abuse it for long, the weeds take over and erosion sets in," Borgerding said.

About 400 acres of Borgerding's best land and the Courthouse Ranch headquarters straddle Big Sheep Creek at the bottom of the steep-walled canyon. Along the creek, which used to flood its banks each spring, Borgerding has reclaimed 60 scoured acres of rocky weed patches and fenced them into eight meadows. The meadows, seeded to 'Latar' orchardgrass and clover, have been built up over the years by applying silt-laden creekwater through an improved irrigation system. "I called it my little Nile River project," Borgerding grinned. "But it isn't working as well anymore because plantings along Big Sheep have stopped bank erosion and the creek is running clear again."

"You can do about anything to the land for a year or so and get by; but if you abuse it for long, the weeds take over and erosion sets in."

While somewhat hampering his reclamation efforts, the rancher's streambank stabilization work is benefiting steelhead and Chinook salmon in Big Sheep Creek, one of the area's important spawning streams. His improvements help protect spawning beds, maintain water quality, and assure a more constant water depth.

On the other land he uses, Borgerding has built and improved about 60 water developments and ponds. He also has followed a planned grazing system aimed at "improving the range, forestry, wildlife, watershed, and recreation resources."

Now, the 56-year-old rancher looks forward to "fine tuning the operation" with his Coordinated Resource Plan. The plan states that an important objective is to increase his 500 cow-calf units to 750 and his yearlings from 475 to 700. That will require more summer range and an improved grazing system on his own land and on the nearby lands ad-

A variety of wildlife, large and small, gets special consideration at Courthouse Ranch.

More than 60 water developments help assure effective grazing distribution of public land used under permit from the Forest Service.

ministered by the Forest Service. The CRP calls for more fences and stockwater ponds for more effective grazing distribution. Additional meadows along the creek will be leveled, seeded, and irrigated.

The Forest Service agrees, as part of the CRP, to seed any areas disturbed by timber sales. And, by agreement with Oregon Department of Fish and Wildlife representatives on the planning group, Borgerding will seek a more compatible balance between numbers of big game and cattle. The plan also includes provisions for improving habitat for game birds such as chukar, huns, and quail.

Like most CRP's, Borgerding's plan is reviewed each year by the planning group and is revised to reflect changed resource conditions, livestock needs, and the rancher's desires.

In 1974, Borgerding was elected to the Wallowa SWCD board of directors and joined the district's campaign to encourage coordinated resource management. According to Don Baldwin, district conservationist at Enterprise, Borgerding's plan is one of 15 covering 220,000 acres in Wallowa County.

"A rancher who doesn't plan and operate with soil and water conservation in mind will end up spending most of his time correcting mistakes," said Borgerding. "We've found that the best way to sell the coordinated resource management idea to another rancher is to show him a plan like mine—one that's really working and that's resulting in improved conservation."

Mr. Wyman is chief, conservation news & reports branch, SCS, Washington, D.C.

Borgerding conducts annual tours for other ranchers and environmental group representatives to show how coordinated resource planning works.

Bluebunch wheatgrass range site is kept in good condition by use of a planned grazing system covering the rancher's own land and 17,000 acres of public land.

Borgerding works with District Conservationist Don Baldwin (left) in carrying out provisions of his Coordinated Resource Plan. The plan is reviewed each year by Borgerding and the state and federal agency team members.

Energy + Environment = Montour Preserve

An energy production facility coexists peacefully with outdoor recreation, wildlife, and farming in the Pennsylvania countryside.

by Harry T. Barnes, Jr.,
and Henry A. Levandoski

Harry T. Barnes and two young visitors discover what's below the lake's surface during an environmental study session.

Some people may think that energy production and environmental quality don't mix. Officials of the Pennsylvania Power and Light Company (PP&L) wouldn't agree. They believe that higher energy production goals can be met without causing irreparable harm to the surrounding countryside.

With this in mind, PP&L created Montour Preserve—1,000 acres of natural woodland, nature trails, outdoor recreation facilities, and wildlife refuges—located next door to its coal-burning electric generating station near Washingtonville in north-central Pennsylvania's Montour County.

The cooling water source for the generating station is the Susquehanna River, 10 miles away. River water is drawn to the station by a very efficient pumping station and pipeline. However, PP&L needed an additional source of water in case mechanical breakdowns or low river water should cut off its Susquehanna supply. So it built a 165-acre reservoir, Lake Chillisquaque, nearby.

The reservoir and its environs are a made-to-order setting for outdoor recreation, wildlife refuges and nesting facilities, and community programs concerned with environmental awareness and resource conservation. Recognizing this, company officials incorporated these features into a master plan for developing the area's natural resources. The plan was drawn up by PP&L's conservation and land management staff with assistance from the Montour Conservation District (CD) and the Soil Conservation Service. It covers about 5,000 acres owned by the company—the 1,000 acres on which Montour Preserve is located and 4,000 acres surrounding it.

Many of the plan's objectives have already been realized. Canoes, rowboats, sailboats, and small electric motorboats cruise the waters of Lake Chillisquaque. Picnickers relax in spacious pavilions. Shutterbugs carry their cameras to the scenic overlooks.

Hundreds of animal and bird species inhabit two wildlife ponds and the lands around them. Muskrat, deer, and at least 213 species of birds make Montour Preserve their home.

Community groups such as Scout troops and 4-H clubs travel as far as 50 miles to the preserve to take part in environmental education programs including forestry and wildlife management, pond ecology, and plant and animal identification. The programs operate out of the preserve's Visitors Center. PP&L encourages instructors of classes from kindergarten through college to use the preserve's environmental study areas for their own programs.

One "classroom" is the Goose Cove wildlife refuge area, which contains an observation building and blind for nature study and photography. Another is the Goose Woods nature trail, for which a self-guiding trail booklet has been developed.

Still another is the Goose Woods "sugar bush," where maple trees are tapped and maple syrup made. This is one of the most popular outdoor laboratories at the preserve. School children have the opportunity to take part in every facet of "maple sugaring" from tapping trees to collecting sap and operating the evaporators, to tasting the final product. Of archeological interest is the Devonian shale pit, which holds fossil evidence of life forms from a sea that covered Montour County more than 400 million years ago.

On the 4,000 acres outside the preserve, farming and hunting are the

Above, children get an onsite lesson in making maple syrup.

Below, John Weaver, Pennsylvania waterways patrolman, instructs visitors in the art of ice fishing.

principal activities. Twenty-seven tenant farmers lease about 2,500 of these acres to grow corn, oats, wheat, barley, and other field crops. Hunters roam some 2,100 acres during specified seasons.

The control center for all of these activities is a century-old Victorian farmhouse, restored and converted into office space. It houses naturalist-director Harry T. Barnes and his staff of three full-time employees.

SCS works with PP&L, the Montour CD, and various conservation agencies to develop and implement plans for the preserve.

SCS helped plan the outdoor recreation areas and helps tenant farmers by providing soils information and designing drainage and erosion control measures.

Plans for future work include demonstration areas which will serve as showcases for forestry, wildlife, farming, and soil and water conservation.

Mr. Barnes is naturalist-director, Montour Preserve, Pa.
Mr. Levandoski is information specialist, PP&L, Allentown, Pa.

Above, the Pennsylvania Fish Commission stocks the lake with a variety of fish including largemouthed bass, northern pike, and panfish.

At left, a restored Victorian farmhouse serves as headquarters for the preserve and a modern Visitors Center (background) is a base for conservation education programs.

Photos courtesy Pennsylvania Power and Light Company and USDA.

by Gene Warren

A Full-Service Watershed

By maintaining a dependable supply of high-quality water for recreation, agriculture, and business, the Bayou Boeuf-Rapides Watershed Project boosts the prosperity of central Louisiana's economy.

To campers, hikers, and anglers in central Louisiana, the Bayou Boeuf-Rapides Watershed Project is a 236,000-acre playground.

The project contains three lakes and enough recreation area to accommodate about 500,000 visitors a year. But it's more than simply a magnet for people who enjoy water sports and the outdoors. It also supplies irrigation water to more than 35,000 acres of rich Red River bottomland. And by attracting hundreds of new residents and businesses every year, it contributes to a healthy economy in the area it serves.

The National Watershed Congress noted all these achievements in 1975, when it picked Bayou Boeuf-Rapides as its Watershed of the Year.

Cotile, Indian Creek, and Kincaid—the Public Law 566 project's three lakes—draw thousands of swimmers, boating enthusiasts, and fishermen. In combination, the three bodies of water cover almost 6,000 acres. Completion of the playground adjacent to Kincaid Lake will bring the total recreation space near the water to about 1,900 acres.

Helping to maintain a dependable water supply within the project is a series of low-level weirs—or concrete dams. Behind each weir is a pool-like expanse of impounded water that is ideal for fishing and vital to agriculture.

Fishermen can try their luck at catching a few of the bluegill and redear bream, black crappie, and largemouthed bass, with which the waters of the area have been stocked. Farmers can use the impounded water for irrigation. Louis Marien, who raises corn within the area served by the project, reports that he now gets 20 more bushels per acre from land that is irrigated.

Area commerce also is thriving. Millions of dollars have already been spent on recreation enterprises, as well as on homes and camps. New businesses—such as grocery stores and boat houses—are finding the area a profitable place to locate.

Resource conservation continues to be a basic ingredient in the project's development. With assistance from the Soil Conservation Service, district cooperators have planted trees and grass, built erosion control structures, and practiced crop residue management. Land treatment maintains water quality and protects the land.

Credit for the watershed's success belongs to a variety of agencies, organizations, and individuals. Among them are the sponsors: the Rapides Parish Police Jury (similar to county commissioners in other states) and the Lower West Red River Soil and Water Conservation District. The Louisiana Forestry Commission and USDA's Forest Service provided forest land. SCS gave financial and technical help, while cooperating with the Louisiana Department of Public Works in planning and surveying.

The people of Rapides Parish taxed themselves more than $2 million for the project. Their reward: an improved lifestyle in a "Watershed of the Year." Said Richard Thompson, past-chairman of the State Soil and Water Conservation Committee, "We are now benefiting from more than $11 million worth of resource development for a better quality of life."

Mr. Warren is public information officer, SCS, Alexandria, La.

by David Chalk

The arid northwestern corner of Utah has not always been a hospitable place for wildlife. Watering facilities in the Blue Creek-Howell watershed are changing that.

Oases for Wildlife

Water is far from abundant in the northwestern corner of Utah. Outside of a few irrigated areas, the countryside is particularly dry during the late summer. That's when wildlife in the rugged, rolling hill country of Box Elder County find life especially difficult.

But wildlife watering facilities installed in the Blue Creek-Howell watershed are changing things. Now, upland game birds and other wildlife can get water when they need it at 20 different locations.

The watering facilities are part of the Blue Creek-Howell Watershed Project. This project was sponsored by area landowners and the Northern Utah Soil Conservation District with technical assistance from the Soil Conservation Service under Public Law 566. Of the project's 115,500 acres, only 3,000 are irrigated—with water from Blue Creek Springs, the only "live" water supply. Also within the watershed are 39,800 acres of rangeland and 72,700 acres of dry cropland.

For wild birds, the dry season comes at a critical time. This is when young birds are first off the nest and require water several times a day. In the past, the lack of water resulted in low brood survival rates in some areas.

The Utah Division of Wildlife Resources designed and installed the 20 watering facilities in the foothills bordering the croplands on a cost-share basis with SCS.

A typical watering structure consists of a fiberglass storage tank with a corrugated metal catchment apron. The apron catches rainfall and funnels it into the tank. When filled, each tank holds 1,000 gallons. A fence around the entire structure protects the fragile aprons from damage by livestock while still allowing wildlife to get in.

Originally, the facilities were intended for upland game birds like the ringnecked pheasant, chukar, and Hungarian partridge. However, spot checks by the Division of Wildlife Resources indicate that even larger numbers of other species are dropping in for an occasional drink. They include mourning doves, mule deer, badgers, and a variety of songbirds.

The facilities are proving to be a good investment. Already, the Division of Wildlife Resources is making plans to install others at several locations throughout the state.

The scarcity of water in northern Utah has made life difficult for wildlife. Watering facilities, installed in the area, can hold up to 1,000 gallons. A catchment apron (top photo) funnels rainfall into a fiberglass storage tank.

Mr. Chalk is biologist, SCS, Salt Lake City, Utah.

Reviews

Our Soils and Their Management.

Roy L. Donahue, Roy H. Follett, and Rodney W. Tulloch. 1976. Fourth edition. Interstate Printers and Publishers, Inc., Danville, Ill. 791 pp., illus. $15.35; $11.50 with educational discount.

This textbook presents basic information on soils management. It is intended for high school students studying advanced vocational agriculture and students enrolled in a 2-year program of post high school study. The text is clearly written and well organized. Each of the 22 chapters begins with an outline of topics and ends with a summary, study questions, exercises, and a list of references.

This book covers basic principles of soil management for most segments of agriculture. It is useful as a basic text although some technical information is oversimplified. In chapter 2, "Soils and Their Environment," for example, soil genesis and formation; physical, chemical, and environmental properties; and soil classification are covered in only 20 pages.

Chapter 3, "Soils and Land Use," is a timely discussion of the concepts of land use planning, the need for establishing priorities in the allocation of prime farmland, and the value of soil survey reports. It also briefly discusses managing soil for nonagricultural uses. Chapter 14 discusses land judging for homesites. And chapter 22 discusses vegetating disturbed areas.

"Our Soils and Their Management" is a valuable text for agriculture students and agricultural technicians and aides.

—Oliver R. Carter, soil scientist, SCS, Hyattsville, Md.

Properties and Management of Soils in the Tropics.

Pedro A. Sanchez. 1976. John Wiley and Sons, New York. 618 pp., illus. $25.

This is a comprehensive, informative, and up-to-date book on the soils in the Tropics. Sanchez objectively tells how the properties of these soils relate to their management for crop production. Special chapters pertain to shifting cultivation, wetland rice production, multiple cropping, and pastures. Although this book is not about soil classification, he stresses its importance. In most places, he indicates the kinds of soils in terms of the U.S. "Soil Taxonomy." Illustrations include maps, graphs, and charts.

Sanchez drew on his extensive experiences in the Tropics and an impressively large number of references. Literature cited is listed at the end of each chapter.

—Arnold C. Orvedal was formerly soil scientist, SCS, Washington, D.C., and is now retired.

Glossary of Terms Used in Pasture and Range Survey, Research, and Management.

Kamal Ibrahim, Food and Agriculture Organization of the United Nations. 1975. Unipub, New York. $11.50 paper.

This is a glossary of range management terms used by range scientists and managers in the Western Hemisphere, Europe, and Africa.

Because the science of range management involves many disciplines, including plant ecology, animal husbandry, and resource management, the technical terms can be confusing. This glossary provides ready access to a universal set of definitions, especially for ecological terms used in North America and Europe.

The author compiled terms from several widely used glossaries. He also included simplified definitions for other terms to make them more meaningful to range people worldwide.

This glossary will be helpful to range scientists and managers even though many of the definitions are brief and some of the references are outdated. For example, the Society for Range Management's "Glossary of Terms Used in Range Management" was revised in 1974, but the author cites the 1964 edition.

Range scientists, conservationists, land managers, and students will find this glossary useful.

—Gary R. Evans, range conservationist, SCS, Washington, D.C.

New Publications

Drought Assistance

from the U.S. Department of Agriculture and cooperating agencies

This pamphlet explains what assistance is available from USDA for farmers, ranchers, and others in designated emergency drought impact areas.

Assistance includes grants and loans by the Farmers Home Administration, cost sharing for conservation measures from the Agricultural Stabilization and Conservation Service, and technical assistance and information about water-saving practices by the Soil Conservation Service.

The pamphlet tells the type of assistance available, who is eligible for it, and where it can be obtained.

Single copies are available from local conservation district offices or from the Information Division, Soil Conservation Service, Room 0054–S, Washington, D.C. 20013.

SCS and Architect-Engineer Services

by the Soil Conservation Service

This brochure explains how SCS helps individual landowners, communities, and local and state governments throughout the United States plan, design, and install engineering structures for managing land and water resources.

It tells about SCS work, identifies the kind of structures and practices commonly installed, and tells how to apply for architect-engineer contracts under SCS programs.

Single copies are available from local conservation district offices or from the Information Division, Soil Conservation Service, Room 0054–S, Washington, D.C. 20013.

Keeping Commissioners Current

by Lynn Betts

Soil erosion, herbicide performance, conservation tillage research, the energy situation, "208" planning, and new mining regulations: All are issues that concern conservation leaders in Iowa. And all were discussed in January at a 2-day briefing for district commissioners at Iowa State University (ISU).

Similar programs have been held annually—usually on the Ames campus—for the past 32 years. Only the agenda is completely new every year.

Called the "Short Course for Soil Conservation District Commissioners," it supplements information presented at statewide and regional district meetings. "We try to help bring the latest information on soil conservation and agriculture to the commissioners," says Dr. Min Amemiya, who develops the course.

Besides the latest word on technical and legislative developments, research programs, district programs, and district relationships with other agencies and groups, the course provides helpful tips on producing and marketing crops and livestock.

The course is offered through the university's short course program, with ISU staff serving as instructors for many of the topics. Other instructors include legislators, agency officials, and news media representatives. A member of SCS—from either the Midwest Technical Service Center or national office—also addresses the group.

SCS cooperates with the university in planning and developing the course along with the Iowa Department of Soil Conservation, State Soil Conservation Committee, Iowa Department of Agriculture, and the Iowa Association of Soil Conservation District Commissioners.

Mr. Betts is public information officer, SCS, Des Moines, Iowa.

Meetings:

June

4–9	General Federation of Women's Clubs Convention, Seattle, Wash.
5–9	American Institute of Architects Convention, San Diego, Calif.
6–7	Wood Energy Conference, Atlanta, Ga.
6–8	National Wetland Protection Symposium, Reston, Va.
10–12	National Audubon Convention, Estes Park, Colo.
19–22	National Watershed Congress, Washington, D.C.
20–24	Air Pollution Control Association Conference and Exhibition, Toronto, Canada
26–29	American Society of Agricultural Engineers, Raleigh, N.C.
26–29	American Society of Landscape Architects, Minneapolis, Minn.
26–30	American Seed Trade Association, Inc., Louisville, Ky.
26–July 1	National Environmental Health Association, San Diego, Calif.
27–29	American Plywood Association, Portland, Oreg.

July

1–4	Izaak Walton League of America, Atlanta, Ga.
14	Forage Legume Conference, Ardmore, Okla.
16–20	American Association of Nurserymen, Inc., Convention, Seattle, Wash.
23–27	National Association of Counties, Detroit, Mich.
24–28	National Federation of Business and Professional Women's Clubs, Inc., Louisville, Ky.
25–28	The Fertilizer Institute Trade Fair and Fertilizer Conference, Kansas City, Mo.
31–Aug. 3	American Agricultural Economics Association, San Diego, Calif.

August

7–10	Soil Conservation Society of America, Richmond, Va.
15–18	National Farm and Power Equipment Dealers Association, St. Louis, Mo.
17–19	Highway Geology Symposium, Rapid City, S. Dak.
21–26	American Institute of Biological Sciences, East Lansing, Mich.

Moving?

Send present mailing label and new address including zip code to:

U.S. Department of Agriculture
Soil Conservation Service
P.O. Box 2890, Room 0054-S
Washington, D.C. 20013

Official Business
Penalty for private use, $300

Controlled Circulation
Postage Paid in
Washington, D.C.

AGR 101